

REMARKS

Claims 1 and 5 are pending in this application. Reconsideration is respectfully requested in light of the following remarks.

Advisory Action

In the Advisory Action of May 12, 2005, the Examiner refused entry of the Declaration under 37 CFR 1.132 submitted with applicants' prior response. By the filing of the RCE on even date herewith, applicants request entry of the Declaration under 37 CFR 1.132 filed with applicants' prior response.

For the sake of convenience, applicants reiterate the marks below previously presented in their Response under 37 CFR 1.116 which take into account the substance of the prior Declaration under 37 CFR 1.132 which should now be considered by the Examiner.

Rejections under 35 U.S.C. §112, first paragraph

Claims 1 and 5 are rejected under 35 U.S.C. §112, first paragraph as allegedly not being enabled. The Examiner asserts that only when the glass or carbon fibers have an average length of 0.5 mm are the claims enabled.

The Examiner accordingly takes the position that the specification does not reasonably provide enablement for use of an

average length of fibers of 0.1 to 5 mm (the range recited in the specification and claims).

The rejection of the Examiner respectfully is traversed.

In support of the rejection, the Examiner states that "there is no dispute that the original disclosure enables the claimed E1/E2 ratio for the claimed tire when using an average fiber length of 0.5 mm and an average fiber diameter of 11 μ m. However, the Examiner also states that "claim 1 fails to recite what the aspect ratio should be or how the average fiber diameter and average length must be selected and matched in order to enable the claimed ratio of E1/E2 for the entire claimed range of 0.1 to 5 mm for the average fiber length."

In response, applicants' submit herewith a Declaration under 37 CFR 1.132 which rebuts the position of the Examiner.

In the Declaration, data for fiber lengths of 0.1 and 3 mm is provided, each of which fall within the claimed range of 0.1 to 5 mm.

As shown in the Declaration, when the fiber length is 0.1 mm, the braking performance on ice and the abrasion resistance are excellent (values of 122 and 101, respectively).

When the fiber length is 3.0 mm, the braking performance is also excellent (values of 118 and 100, respectively).

Applicants have now demonstrated that values of average fiber length substantially over the entire range of 0.1 to 5 mm result in highly desirable results.

Apart from the question of fiber length, the Examiner questions the role of the aspect ratio of the fibers in practice of the claimed invention.

Applicants previously argued that the elastic modulus of the tread is largely dependent on the elastic modulus of the staple fibers themselves and that the elastic modulus ratio is also largely dependent on the orientation direction of the staple fibers.

The elastic modulus ratio, $E1/E2$, is dependent not only on the above factors, but is also dependent on the aspect ratio of the staple fibers (L/D). The fact that the elastic modulus ratio is dependent on the aspect ratio of the staple fibers is a fact that is evident to those of skill in the art. As such, one of ordinary skill in the art can readily determine how to achieve a requisite value of $E1/E2$ within the recited range when confronted with applicants' specification.

Applicants respectfully submit that this equation can be satisfied when the fiber lengths differ. In particular, applicants note that, irrespective of the length of the staple fibers, whether the staple fibers have a length of 0.5 mm or any fiber length in the range of 0.1 to 5 mm (as recited in claim 1), one of ordinary

skill in the art can easily obtain a tread that satisfies the elastic modulus ratio of $1.1 \leq E1/E2 \leq 4$. In other words, one of ordinary skill in the art can practice the invention commensurate in scope with the claimed invention without undue experimentation.

The rejection is thus without basis and should be withdrawn.

Rejections under 35 USC §103

Claim 1 is rejected under 35 U.S.C. §103(a) as being unpatentable over JP '204 (JP 62-191204) in view of JP '209 (JP 07-061209) and JP '214 (JP 10-129214) and optionally further in view of German '792 (DE Patent No. 3122792).

Claim 5 is rejected under 35 U.S.C. §103(a) as being unpatentable over JP '204 in view of JP '209 and JP '214 and optionally further in view of German '792 and further in view of JP '603 (JP 03-258603).

These rejections respectfully are traversed.

By way of review, braking performance on ice and snow is usually improved by increasing the scratching strength to icy surfaces. That is, by increasing the elastic modulus E1 in the tire radial direction. This consequentially leads to the assumption that a larger elastic modulus ratio results in a braking performance on ice and snow that is expected to improve as the elastic modulus ratio becomes larger.

However, in reality, when the elastic modulus ratio becomes larger than 4, the braking performance on ice and snow actually unexpectedly decreases.

For example, when Example 1 and Experiment 2 of the Declaration under 37 CFR 1.132 of May 12, 2003 are compared, the braking performance on ice of Experiment 2 having an elastic modulus of 4.22 is 92, while the braking performance on ice of Example 1 is 125. In this case, Example 1, which falls within the scope of the claims, has better braking performance on ice and snow than Experiment 2, which has an elastic modulus ratio that falls outside the scope of the claims (please note that it is greater than the maximum allowed value).

This demonstrates that the excellent effect showing an increase in braking performance on ice by at least 30 is obtained when the elastic modulus ratio satisfies the equation $1.1 \leq E1/E2 \leq 4$. This effect would never be surmised by any of the cited references, which do not mention or remotely consider the elastic modulus ratio. As has been pointed out in previous responses and as is repeated here, only when the elastic modulus ratio equation $1.1 \leq E1/E2 \leq 4$ is satisfied does one obtain the excellent and unexpected effects seen in the instant invention.

The Examiner in the Official Action finds such arguments unpersuasive, stating in part that "the results in experiment #1 of the original disclosure are not commensurate in scope with the

claims since (1) no invention example having a fiber length greater than 0.5 mm has been tested and (2) claim 1 recites an average fiber length of 0.1 to 5 mm", concluding "no unexpected results have been shown for the range of more than 0.5 mm but less than or equal to 5mm".

The data in the attached Declaration rebuts the position of the Examiner. As shown by Experiments 3 and 4 of the attached Declaration, even when (1) the average staple fiber diameter and (3) the elastic modulus ratio satisfy the limitations of the claims, the resulting properties are less than satisfactory when (2) the average staple fiber length is not within the scope of the claims.

More specifically, in Experiment 3 (where the average fiber length is 6 mm - outside the scope of the claims), the braking performance on ice is only 100, and the abrasion resistance is only 91. In Experiment 4 (where the average fiber length is 0.08 mm - also outside the scope of the claims), the braking performance is only 98, while the abrasion resistance is 99. In each of Experiments 3 and 4, the E1/E2 ratio falls within the scope of applicants' claimed range.

By contrast, the Examples of the instant specification as well as the previously-submitted Declarations under 37 CFR 1.132, taken with Examples 1 and 2 of the attached Declaration, demonstrate that excellent braking performance on ice and abrasion resistance are

obtained when each of (1) average staple fiber diameter, (2) average staple fiber length, and (3) elastic modulus ratio meet the limitations of the claims.

The cited references neither describe nor suggest the claimed invention - that is, that a studless tire having excellent braking performance on ice and abrasion resistance can be obtained in the manner claimed. As such, the Examiner fails to present a *prima facie* case of obviousness - even if presented, applicants have rebutted any inference of obviousness.

In view of the above, the rejections under 35 USC 103(a) are without basis and should be withdrawn.

The application is accordingly in condition for allowance, and an early indication of same is earnestly solicited.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact James W. Hellwege (Reg. No. 28,808) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), Applicant(s) respectfully petition(s) for a third month extension of time for filing a reply in connection with the present application, and the required fee of \$570.00 is attached hereto (a two month extension of time previously having been obtained).


If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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By 

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